| Digits : | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Frequency : | 1026 | 1107 | 997 | 966 | 1075 | 933 |
| Digits : | 6 | 7 | 8 | 9 | Total | |
| Frequency : | 1107 | 972 | 964 | 853 | 10,000 | |

Test whether the digits may be taken to occur equally frequently in the directory.

16. Fit a suitable distribution to the following data with respect to the number of red blood corpusles ($x$) per cell :

| x : | 0 | 1 | 2 | 3 | |
|---|---|---|---|---|---|
| Number of cells f : | 56 | 156 | 132 | 92 | |
| x : | 4 | 5 | 6 | 7 | 8 |
| Number of cells f : | 37 | 22 | 4 | 0 | 1 |

17. Researcher conducted a study involving 20 cars, each treated with one of four different engine oils. The cars were then driven for 100 kilometers, and their performance was measured. The performance data for each engine oil treatment is as follows :

| Engine Oil | Performance | | | | |
|---|---|---|---|---|---|
| Engine Oil 1 | 89 | 89 | 88 | 78 | 79 |
| Engine Oil 2 | 93 | 92 | 94 | 89 | 88 |
| Engine Oil 3 | 89 | 88 | 89 | 93 | 90 |
| Engine Oil 4 | 81 | 78 | 81 | 92 | 82 |

Perform a one-way ANOVA test in Python without using any in-built function.

## Part – C

18. Viva-voce 10
19. Practical Note Book. 10

★★★





# PG EVEN SEMESTER EXAMINATION, 2024

## STATISTICS

2nd Semester

Course No. : STS - 556

( Python Programming )

Full Marks : 70

Pass Marks : 28

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

## Part-A

(Answer any five questions from this part)

2x5=10

1. What are Python keywords?
2. What are the rules for writing identifiers in Python?
3. Create a function named add-numbers ( ) with arguments num1 and num2.
4. State the advantages of using comments in Python.
5. What are the different types of Comments in Python?
6. How to define a variable in Python?
7. State the difference between Variables and Assignment in Python.
8. Define Python data types.
9. Create a set with string, integers and boolean values.
10. Name the different types of operators in Python.

( Turn Over )

## Part – B

Answer any 4 questions from this part

4x10=40

11. Write a Python program to compute the following descriptive statistics for the given data set without using any built in functions:

    data = 25, 30, 22, 18, 35, 28, 20, 32, 27, 23, 19, 26, 29, 21, 24, 31, 33, 34, 20, 28

    Compute

    (a) Mean (b) Median (c) Mode

    (d) Variance (e) Skewness (f) Kurtosis

12. A school wants to analyze the performance of its students in various subjects. The following data has been collected :

| Student | English | Hindi | Math | Science | Social Studies |
|---|---|---|---|---|---|
| 1 | 73 | 62 | 81 | 54 | 68 |
| 2 | 65 | 71 | 75 | 82 | 77 |
| 3 | 82 | 68 | 79 | 71 | 75 |
| 4 | 77 | 75 | 83 | 68 | 72 |
| 5 | 71 | 79 | 72 | 75 | 79 |
| 6 | 68 | 82 | 75 | 79 | 71 |
| 7 | 75 | 75 | 82 | 72 | 75 |
| 8 | 79 | 68 | 75 | 75 | 82 |
| 9 | 72 | 75 | 68 | 82 | 75 |
| 10 | 75 | 72 | 75 | 75 | 68 |



i) Create an appropriate graph to visualize the overall performance of students in each subject.

ii) Create a graph to visualize each students performance on all the subjects and comment on the difference between the students based on the graph.

13. The marks obtained by 10 students in Mathematics and Statistics are given below:

| Roll No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Marks in Mathemtics: | 75 | 30 | 60 | 80 | 53 | 35 | 15 | 40 | 38 | 48 |
| Marks in Statistics : | 85 | 45 | 54 | 91 | 58 | 63 | 35 | 43 | 45 | 44 |

i) Find the coefficient of correlation between the two subjects.

ii) Draw a scatter diagram of the given data set.

14. In a certain experiment to compare two types of pig foods A and B, the following results of increase in weights were observed in pigs.

| Pig Number | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Increase | Food A | 49 | 53 | 51 | 52 | 47 | 50 | 52 | 53 | 407 |
| in weigh in lb | Food B | 52 | 55 | 52 | 53 | 50 | 54 | 54 | 53 | 423 |

Assuming that the two samples of pigs are independent, can be conclude that food B is better than food A?

15. The following figurer show the distribution of digits in numbers choosen at random from a telephone directory:

( Turn Over )